

U.S. Application No. 10/036,338
Amendment dated January 23, 2004
Reply to Office Action dated August 26, 2003

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-40 (cancelled)

Claim 41 (currently amended): A sputtering target assembly comprising ~~the a~~ sputtering target having sidewalls of claim 40, and further comprising a top portion made of a non-sputtering or sputter resistant material and attached to the sidewalls of the sputtering target, ~~or an outer shell made of a non-sputtering material wherein the sputtering target being secured to the outer shell or both~~ wherein said sidewalls and said top portion form a hollow cathode target.

Claim 42 (original): The sputtering target assembly according to claim 41, wherein the top portion is made of a valve metal base material having a strong (100) texture.

Claim 43 (original): The sputtering target assembly according to claim 42, wherein the valve metal base material is a tantalum-base material, a niobium-base material, or both.

Claim 44 (original): The sputtering target assembly according to claim 42, wherein the valve metal base material is a valve metal or alloy thereof having a strong (100) texture.

Claim 45 (original): The sputtering target assembly according to claim 44, wherein the valve metal alloy comprises tantalum and tungsten.

Claim 46 (original): The sputtering target assembly according to claim 41, wherein the top portion is made of a non-hydriding material.

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Claim 47 (currently amended): The sputtering target assembly according to claim 60 41, wherein the outer shell is made of a non-hydriding material.

Claim 48 (original): The sputtering target assembly according to claim 47, wherein the outer shell comprises aluminum, copper, or both.

Claim 49 (currently amended): ~~A~~ The sputtering target assembly of claim 41,
wherein said sidewalls comprise target comprising at least one valve metal, ~~wherein~~
~~said target has a HCM design~~ and said target valve metal has

- a) a grain size of 5 ASTM or finer;
 - b) a mixed (111)-(100) global texture; or
 - c) a uniform grain size wherein the grain size variance is +/- 2 ASTM; or
- combinations thereof.

Claim 50 (original): The target of claim 49, wherein said target has at least two of the three properties.

Claim 51 (original): The target of claim 49, wherein said target has all three properties.

Claim 52 (original): The target of claim 49, wherein said target is at least partially recrystallized.

Claim 53 (original): The target of claim 49, wherein said target is at least 95% recrystallized.

Claim 54 (original): The target of claim 49, wherein said target is fully recrystallized.

Claim 55 (original): The target of claim 49, wherein property a) is present and

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said primary (111)-type global texture is free of sharp, localized bands of (100) texture.

Claim 56 (original): The target of claim 49, wherein property a) is present and said grain size is from about 5 ASTM to about 13 ASTM.

Claim 57 (original): The target of claim 49, wherein property a) is present and said grain size is from about 5 ASTM to about 10 ASTM.

Claim 58 (original): The target of claim 49, wherein property a) is present and said grain size is from about 7 ASTM to about 9 ASTM.

Claim 59 (cancelled)

Claim 60 (new): The sputtering target assembly of claim 41 further comprising an outer shell made of non-sputtering material attached to said sidewalls and said top portion.

Claim 61 (new): The sputtering target assembly of claim 49, wherein said valve metal is tantalum or an alloy thereof.

Claim 62 (new): The sputtering target assembly of claim 49, wherein said valve metal is niobium or an alloy thereof.